



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/529,369

10/05/2005

Hiroshi Matsutani

1303.44954X00

4784

20457

7590

10/08/2008

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER

ZIMMER, MARC S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

10/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,369	Applicant(s) MATSUTANI ET AL.	
	Examiner MARC S. ZIMMER	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-19 and 21-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8-14, 16-19 and 21-31 is/are rejected.
- 7) ☒ Claim(s) 4-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 13-14, 16-19, 24-26, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the abstract entitled "Evaluation of Low-k Polymer Film containing Borazine Unit" authored by Uchimaru et al. and published in Extended Abstracts (the 62nd Autumn Meeting, 2001); *The Japan Society of Applied Physics and Related Societies*, September 11-14, 2001, pg. 656 in view of Kirner et al., U.S. Patent Application Publication No. 2003/0224156 or Mercer et al., U.S. Patent # 5,179,188 for the reasons outlined previously.

Claims 1-3, 13-14, 16-19, 24-26, and 30-31 rejected under 35 U.S.C. 103(a) as being unpatentable over the abstract for an article entitled "Borazine-Siloxane Polymer and it's Application" authored by Inoue et al. and published in the Proceedings of the Symposium on Semiconductors and Integrated Circuits Technology, 2002, 63, pg. 96-101 in view of Kirner et al., U.S. Patent Application Publication No. 2003/0224156 or Mercer et al., U.S. Patent # 5,179,188 for the reasons outlined previously.

Claims 10 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Uchimaru abstract, Kirner, and Mercer as applied to claims 1-3, 13-14, and 20

Art Unit: 1796

above, and further in view of *Montegi et al.*, U.S. Patent # 5,115,069 for the reasons outlined previously.

Claims 10 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue, Kirner, and Mercer as applied to claims 1-3, 13-14, and 20 above, and further in view of *Montegi et al.*, U.S. Patent # 5,115,069 for the reasons outlined previously.

Claims 8, 9, 11, 12, 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Uchimaru abstract, Kirner, and Mercer as applied to claims 1-3, 13-14, and 20 above, and further in view of Kobayashi et al., U.S. Patent # 6,376,601 for the reasons outlined previously.

Claims 8, 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue, Kirner, and Mercer as applied to claims 1-3, 13-14, and 20 above, and further in view of Kobayashi et al., U.S. Patent # 6,376,601 for the reasons outlined previously.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

Art Unit: 1796

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3 are rejected on the ground of nonstatutory double patenting over claims 1-19 of U. S. Patent No. 6,924,545 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter.

First, there seems to be an implication that, insofar as the assignees for the patent and the instant application are different, a non-statutory double patenting rejection is improper. If this was Applicants' position, they are advised that, according to MPEP 804, it is only required that the conflicting claims share one inventor in common.

The other arguments against this rejection are predicated on matters related to combinability, the notion that the instantly claimed properties are inherent, etc. The Examiner's rebuttal of these arguments is outlined infra.

Response to Arguments

At the outset, the Examiner wishes to emphasize that, insofar as the inventions realized upon combining the aforementioned teachings yields a polymer of comparable structure and having comparable levels of metal content, the claimed Young's modulus and leak current respectively are inherently satisfied. Applicant traverses the Examiner's position on pages 34 and 35 of their response on the grounds that not all the parameters of the two polymers are necessarily coincident, e.g. molecular weight and, hence, an assertion of inherency is improper. However, both the instant application and the prior art disclose the same synthetic approach for making the polymer which leads the Examiner to conclude that the molecular weights of their respective polymer materials are approximately the same. (Moreover, it is not evident to the Examiner the impact that molecular weight has on the Young's modulus.) As for any differences in leak current, it is the Examiner's position that non-conductive materials, of which there would be none aside from the catalyst, will not affect this property. That the proposed combinations employ the same techniques for catalyst isolation means that the amount of residual catalyst left in the polymer host would be about the same and, by extension, the leak current would likewise be the same.

Concerning the efficacy of Applicant's Declaration as a means of overcoming the rejections under 35 U.S.C. 103- setting aside the idea of whether a comparison with the closest prior art has been made which remains in dispute- it is the Examiner's position that this submission does nothing more than verify that not all known approaches for removing hydrosilylation catalyst from a polymer material are equally efficient and it is

Art Unit: 1796

hardly unexpected that some methods of catalyst removal will be better than others. In the Examiner's estimation, the skilled artisan would, as a matter of routine experimentation, test the different known methods of catalyst removal, of which there are not an overwhelming number so as to put an undue burden on the practitioner, to ascertain which methods would work best. (If there had been innumerable known ways of removing a platinum catalyst from an organic/organometallic polymer system, then the Examiner's contention that the claimed product and method are prima facie obvious may have been untenable.) In addition to the method of hydrosilylation catalyst removal summarized in the comparative Examples of Applicants' Declaration are those outlined in Montegi et al and Kobayashi et al., which happen to mirror the methods employed by Applicant. One of ordinary skill would certainly have been motivated to test these methods among others to identify those which would minimize the amount of platinum metal left in the polymer and, thus, the claims are still considered to be unpatentable. It is Applicants' position that the methods espoused by Montegi and Kobayashi are unexpectedly better than are other known methods but, again, the Examiner sees nothing unexpected in the observation that one catalyst isolation technique yields better results than another.

Additionally, that Uchimaru and Inoue are silent concerning the Young's modulus and leak current is immaterial in the Examiner's estimation because (i) the Young's modulus is inherent in the polymers of these disclosures given the structural similarities and (ii) the secondary references Kirner and Mercer identify problems associated with the presence of metal impurities in a dielectric film thereby motivating the skilled artisan

Art Unit: 1796

to remove these impurities to the greatest extent possible. In doing so, the leak current limitation would, likewise, be inherently satisfied.

Applicant goes to considerable lengths to formulate the position that, not only is Mercer not combinable with Uchimaru and Inoue, its teachings are in direct conflict with those of the primary references. The Examiner appreciates that Mercer advocates the preparation of dielectric materials that avoid the requirement for a catalyst in their assembly but the Examiner remains unconvinced of a conflict because Mercer is really only relied upon to support his contention that the skilled artisan is cognizant of the fact that the presence of metals in a dielectric film is disadvantageous. Besides, the Examiner could have relied on Kirner alone to corroborate his assertion that one of ordinary skill is motivated to remove sources of metal from a dielectric film-forming material but instead chose to invoke the teachings of both to further augment his position.

Incidentally, that Kirner says that the metal impurity level should be 500 ppm or less is not indicative of a preference for the higher end of this range. Indeed, the skilled artisan understands that the lowest achievable limits are most desirable. The skilled artisan also will appreciate that, although Kirner and Mercer contemplate the employment of different materials as the dielectric film-forming material, the disadvantages associated with metals in these host materials extend to all dielectric polymers. Similarly, though Kirner perhaps only mentions alkali metals insofar as these are the metals that would be present in a silica film (as alkali bases are known condensation catalysts for silane polycondensation), the skilled artisan understands that

Art Unit: 1796

all conductive metals impurities are problematic when insulating characteristics are sought.

The Examiner is not compelled by Applicants' argument that the skilled artisan is somehow discouraged from using the techniques espoused by Motegi and Kobayashi in the inventions of Uchimaru and Inoue because the former are directed to the formation of small molecules instead of polymers.

Allowable Subject Matter

Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1796

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARC S. ZIMMER whose telephone number is (571)272-1096. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 7, 2008

/Marc S. Zimmer/
Primary Examiner, Art Unit 1796